

40. MORPHOLOGICAL VARIATIONS IN *SILENE INDICA* ROXB.  
(CARYOPHYLLACEAE) DUE TO CHANGE IN HABITAT—A STUDY  
WITH ALLIED WALLICHIAN SPECIMENS

The Himalayan herb *Silene indica* Roxb. grows in alpine to subalpine regions, 3000-5000 m, from Kashmir, Western Himalaya to Arunachal, Eastern Himalaya, and Tibet. It is frequent in the Central Himalaya.

*Silene indica* Roxb. ex DC. Prodr. 1:368. 1824. Typus: Nepal, 1821, *Wallich* in Wall. list no. 624 (Holo. G-DC; iso. G, K, E, CAL); D. Don, Prodr. Fl. Nepal. 216. 1825; Roxb. Fl. Ind. ed. Carey, 2:446. 1832. Type: Roxb. icon 1555 (K, CAL). *Lychnis indica* (Roxb. ex Oth) Benth. in Royle, Illustr. Bot. Himal. 1:81. 1934; Edgew. & Hook. f. in Fl. Brit. India 1:225. 1874; *Melandrium indicum genuinum* Rohrb. Linnaea 36:234. 1869-70; *Lychnis nutans* Royle ex Bentham in Royle, Illustr. Bot. Himal. 1:80. 1834. Typus: "*L. ciliata* Gossain Than, *Wallich* in Wall. list no. 621 (BM, G, K, P, OXF, CAL); *Silene thomsonii* Majumdar, J. Indian Bot. Soc. 42: 650. 1963.

In the wild condition the plant flowers during July to October and fruits during September-October. The type specimen *Wallich* 624 has been studied and characters noted. This specimen was prepared from plants growing wild in Nepal.

Dr. F. Buchanan donated some plant materials of *S. indica* Roxb. from Nepal to the East India Company's Botanic Garden at Calcutta, in 1802. The annual erect herb was cultivated in the garden since that time. Later on the specimen *Wallich* 624 C was prepared from this cultivated plant and was listed by Dr. N. Wallich in his "A numerical list of dried specimens of plants....." p. 235 (Additions & corrections). This cultivated *Silene indica* was stated by Dr. William Roxburgh in his "Hortus Bengalensis, or A Catalogue of Plants growing in the Honourable East India Company's Botanic Garden, Calcutta, Serampore, 1814" in page 34, to bear flower during the months of March to May, and the seeds were stated to mature during April to June. The abbreviation HBC means "Hortus Botanicus Calcuttensis."

From the natural environment of moderately dry conditions in the high altitudes of Nepal Himalaya, the plant was brought and grown in an extremely moist and moderately saline soil in the plains at the Botanic Garden, Calcutta. Due to this drastic change in habitat, the plant acquired some altered characters which are shown in the following table:

Wall. 624 (wild)	Wall. 624 C (HBC, cult.)
1. Leaf smaller, upto 3.5 cm long.	1. Leaf larger, upto 7.5 cm long.
2. Inflorescence a regular dichotomous cyme, moderately clothed with scabrid hairs.	2. Inflorescence not yet fully open, densely clothed with about 1.5 mm long flexuous hairs.
3. Calyx 13 mm long, moderately scabrid hairy, teeth triangular, 3 mm long, with scarious margin.	3. Calyx 17 mm long, densely hairy, teeth narrow, linear, 6 mm long, without a scarious margin.
4. Petals a little exceeding the calyx (1-2 mm).	4. Petals appearing much more exceeding the calyx, due to the narrow and patent nature of calyx teeth.
5. Fl. July-Oct., Fr. Sept.-Oct.	5. Fl. March-May, Fr. Apr.-June.

The cultivated plant successfully produced flowers and fruits, but at a different time. The growth and density of hairs in the specimen 624 C may be due to the saline condition of soil in which it was grown.

The Eastern Himalaya also has a moist type of environment, differing from the relatively dry climate of Nepal, due to which *S. indica* growing in the Eastern Himalaya naturally have larger leaves and some other characters different from those of the type from Nepal, "Wallich 624". The wide range of variation in the vegetative and reproductive parts is due

to the different habitats in which the plant is growing.

On examining the specimen Wall. list no. 621 with reference to the specimen Wall. list no. 624, it has been found that the two so called taxa do not have considerable difference between them. Hence *L. nutans* Royle may better be merged with *Silene indica* Roxb., as done by G. Bocquet in *Candollea* 22:12 (1967). As a result of this merging, the name *Silene thomsonii* Majumdar (1963) proposed earlier for *Lychnis nutans* Royle, also becomes a synonym of *Silene indica* Roxb.

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#### 41. *KALLSTROEMIA PUBESCENS* (DON) DANDY—A NEW RECORD FOR MAHARASHTRA STATE

(With a text-figure)

A perusal of the available literature shows that in the State of Maharashtra the family Zygophyllaceae is represented by only six genera, namely *Tribulus*, *Seetzenia*, *Peganum*, *Zygo-phyllum*, *Fagonia* and *Guaiacum*. So far the occurrence of the genus *Kallstroemia* Scop. in the State of Maharashtra has not been recorded. As far as I am aware, the only record of this genus in India is by Bennet (1965).<sup>1</sup> He recorded the occurrence of *Kallstroemia pubescens* (Don) Dandy. from Howrah District, West Bengal. The present report is the second record of *Kallstroemia* Scop. for the Indian flora and the first record of Maharashtra.

<sup>1</sup> BENNET, S. S. R. (1965): Genus *Kallstroemia* Scop. (Zygophyllaceae)—New to Indian flora. *Indian Forester* 91(5): 281-283.

*Kallstroemia* Scop. is represented by the species *Kallstroemia pubescens* (Don) Dandy. This species, a native of Tropical America, was collected from Gorepeth, Nagpur. Only a few plants were growing luxuriantly along the roadside, near a newly constructed wall, during the monsoon season in August 1976.

*Kallstroemia pubescens* (Don) Dandy in *Kew Bull.* 1955: 138.

*Tribulus pubescens* Don, *Gen. Syst.* 1: 769, 1831.

Diffuse procumbent herb, stem including branches 20-50 cm long, pubescent with white hairs, younger parts densely pubescent; leaves 2-5 cm long, abruptly pinnate, usually opposite, occasionally alternate towards the base of the branches, when opposite one of each pair alternately smaller, rachis 1-3.5 cm long, pub-